



USD(AT&L) Program Tenets

USD (AT&L) envisioned a JTRS to replace the unique legacy systems with a family of common radios, with the goals of:

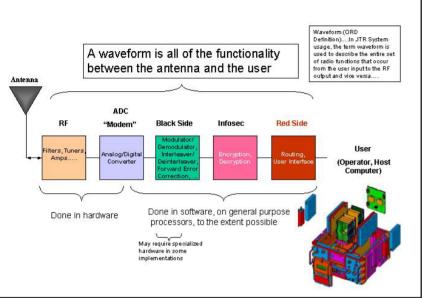
- Interoperability
- Low unit cost
- High Reliability
- Accelerated procurement and fielding Open System Architecture (for evolution)
- Competitive acquisition (for full life, if possible)
- Commercial technology and infrastructure (as much as possible), including Logistics
- For all Services (eliminate service-unique radios)
- Talk to Legacy Systems
- Configuration Control as a key element
- Services do procurements of Joint radios
- Operational Requirements Document (ORD) requirements include Trade Space for Cost as an Independent Variable (CAIV)
- Reduce number of waveforms





JTRS Waveforms and SCA

What is a Waveform?





JTRS SCA and Waveforms Enable:

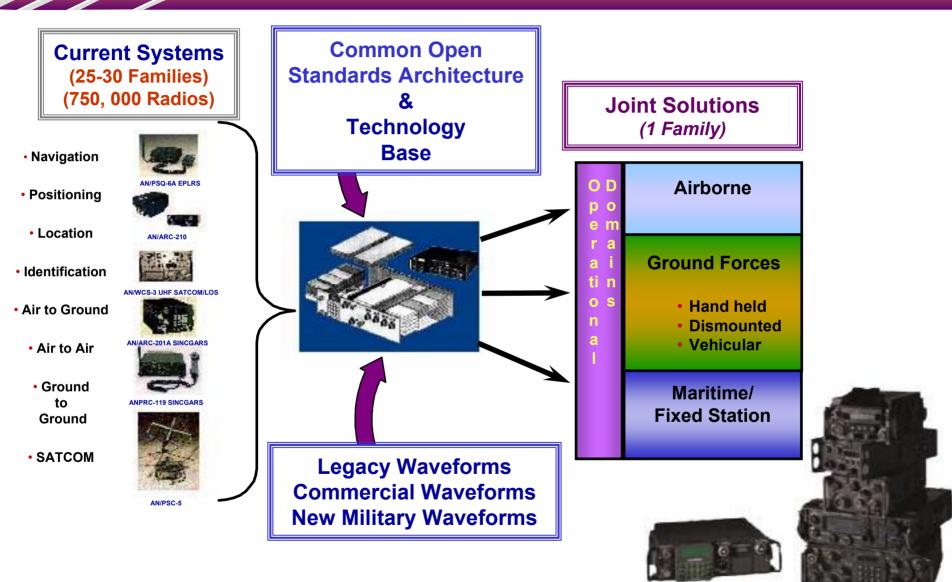
- · Porting of waveforms across radio platforms
- Interoperability among radios
- Use/reuse of common software across waveforms
- Scalability in number of channels, and across form factors
- Use of commercial product lines, if commercially adopted







A Common Architecture Provides the Solution





How JTRS Differs From Legacy

Legacy

1980s

1990s

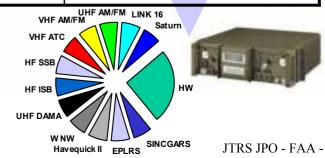
HW

2000s

Charac	cteristics
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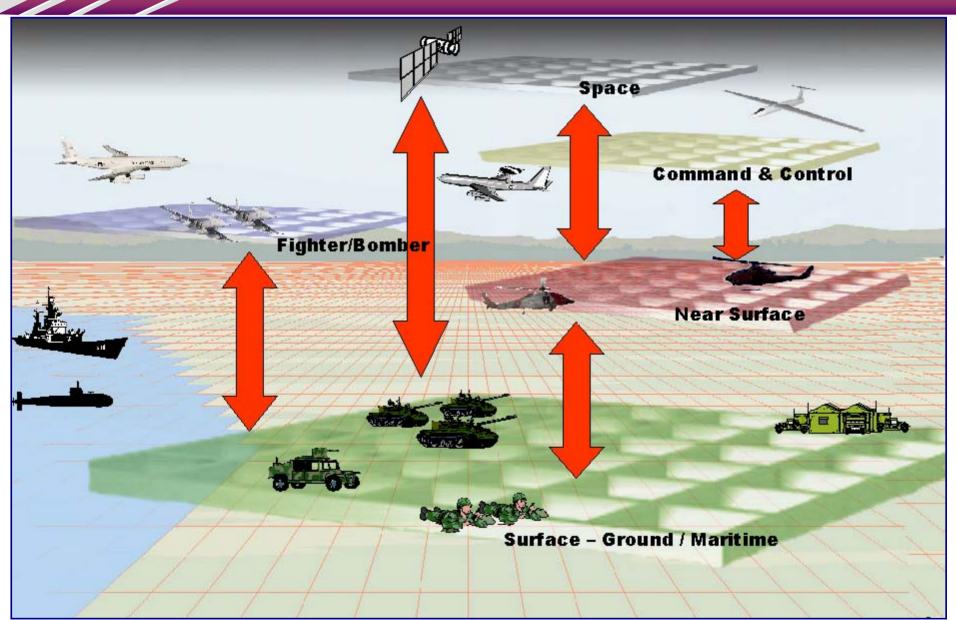
Characteristics			
Radio Architecture	Mostly Hardware	Mostly Software (vendor specific Architecture – not portable)	Software radio based on common Architecture for portability)
Freq Bands / Channels	Single Freq Band Single Channel	Multiple Freq Bands Single Channel	Multiple Freq. Bands Multiple Channels
Services	Voice or Data	Voice or Data	Voice, data, and Video
Interfaces	Limited, MIL-STD	Flexible MIL-STD & Commercial (Serial)	Flexible, MIL-STD, Commercial (Serial, Ethernet)
Technology	ASICS and DSPs	ASICs, DSPs, FPGAs	General Purpose Processors, DSPs, FPGAs
Upgrades	Hardware Upgrade	Mostly Software upgrade	Software upgrade
Crypto / Algorithms	External / HW Based	Embedded / Hardware based	Embedded / Programmable

ASIC-Application Specific Integrated Circuit DSP- Digital Signal Processor FPGA-Field Programmable Gate Array





JTRS Clusters





Cluster 1 Customers



Cluster 1 Products

Ground Vehicular Radio



Target Cost (\$50 - 100K) (2-8 channels) Configuration Dependent

Rotary Wing Aviation Radio

Waveforms

- •SINCGARS
- •EPLRS
- •DAMA SATCOM
- •HF ISB & SSB w/ALE
- •HAVE QUICK
- •LINK 16
- •ATC VHF (8.33)/Data Link
- •Wideband Networking Waveform

- Capabilities
- •SCA Compliant
- $\bullet Interoperability\\$
- Cross-banding
- Networked
- -New functionality in WNW
- -Full functionality of legacy Radios
- Protocols/Standards
- •Flexibility
- •Waveform Storage

- AF migrates w/F-22
- Navy & Marines migrate w/Airborne Cluster?

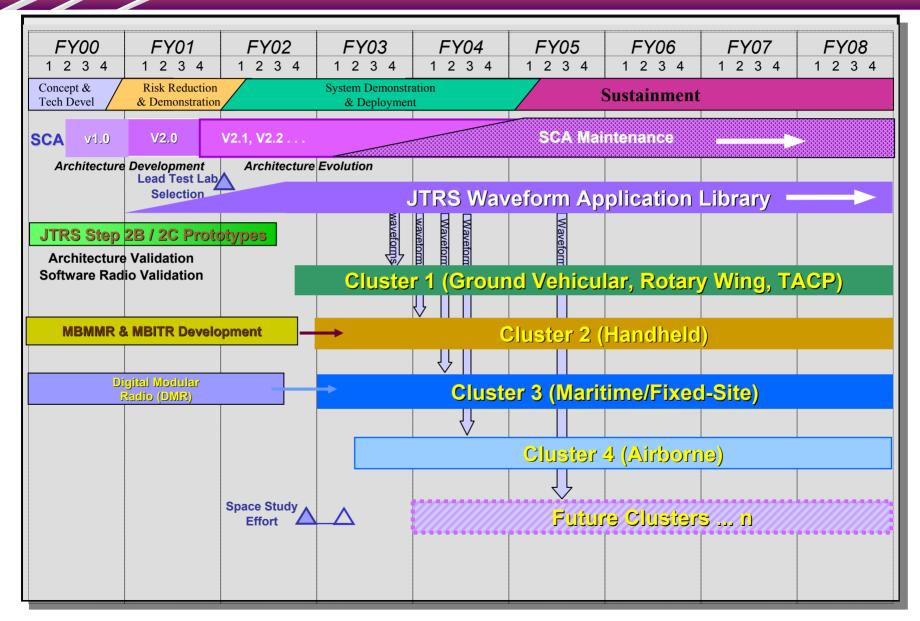


Acquisition Strategy

- ASR approved 14 Jun 02 by USD (AT&L)
 - Services accept lead for Cluster acquisition of JTRS Radio Sets
 - JPO responsible for waveforms
 - ASR is a Capstone document- Cluster ASRs are provided as attachments
- SCA Version 2.2 release Nov 01
- JTRS Joint Temp Approved 31 Oct 02
- Waveform Contract Awards
 - 21 Waveforms on Cluster 1 SDD contract 24 Jun 02
 - SINCGARS ESIP 27 Sept 02
 - COBRA, IFF (Mode S), and APCO25 Waveforms awarded 12 Dec 02
- CRYPTO Algorithms
 - AIM Contract Awarded 12 Dec 02
 - SIERRA Contract Pending anticipate early Jan 03
 - Cornfield Contract Planned for FY04
- Service Manning MOA
 - AMSAA completed (submitted) Draft Manning Survey
 - Initiate Service staffing Jan 03
- Program Management Plan
 - PM approved 24 May 02
 - Submitted to OSD (AT&L) 31 May 02

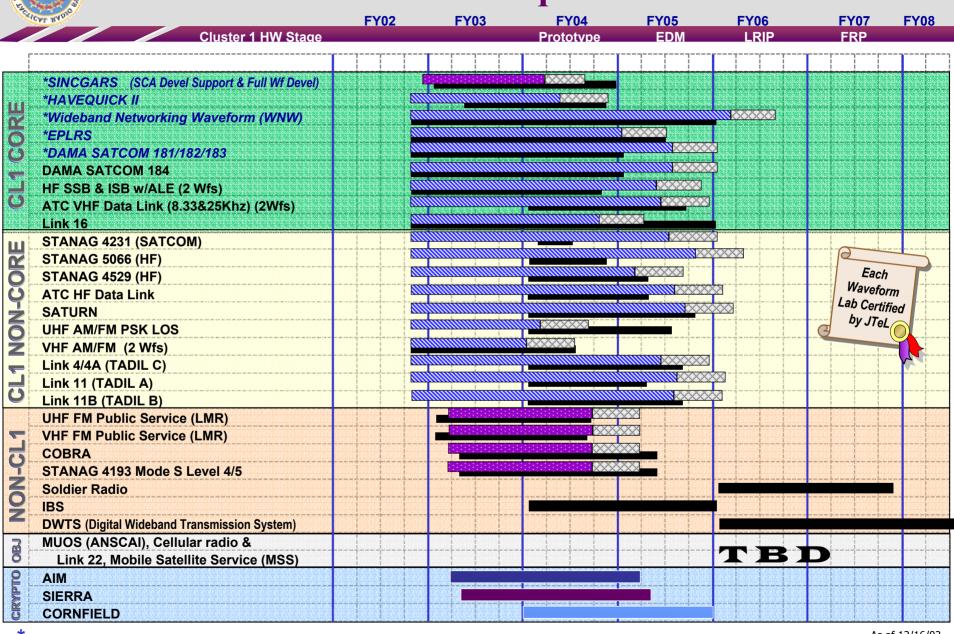


JTRS Program Schedule





Joint Waveform Acquisition Schedule



*ITALICS – KPP Waveforms, Waveforms devel. in Cluster 1, JPO-devel. Waveforms 15 Jan 2003

JTeL - JTRS Technical Laboratory

- JTeL Certification (Average Time Shown)

As of 12/16/02 - DAB Estimate





Acronym List

- ACN Airborne Communications Node
- ALE Automatic Link Establishment
- AMSAA Army Materiel Systems Analysis Activity
- CAIV Cost as an Independent Variable
- C4I Command, Control, Communications, Computers and Information
- CAIG Cost Analysis Improvement Group
- DAMA/DASA Demand Assigned Multiple Access/Demand Assigned Single Access
- ESIP Enhanced System Improvement Program
- HCI Human Computer Interface
- ICNIA Integrated Communication Navigation Identification Avionics
- IFF Identify Friend or Foe
- IT Information Technology
- LOS/BLOS Line of Sight/ Beyond Line of Sight
- OIPT Overarching Integrated Product Team
- SCA Software Communications Architecture
- SINCGARS Single Channel Ground and Airborne Radio System
- SIVD SINCGARS Integrated Voice Data
- SUOSAS Small Unit Operations Situational Awareness Program

15 Jan 2003

JTRS JPO - FAA - 12

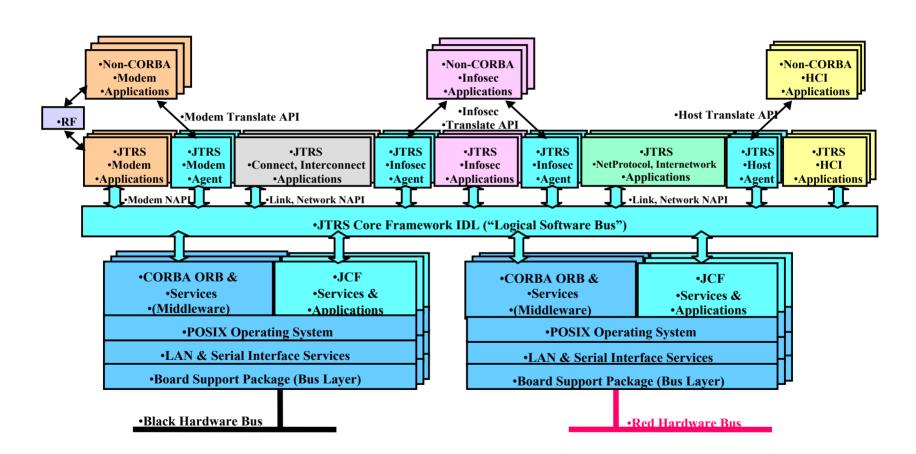


Architecture Definition

•JTRS and/or Legacy Applications

•JTRS Core Framework (JCF)

•Commercial Off-the-Shelf (COTS)



SCA = Rules and Protocols